SDAV: V2X Datasets

1. Introduction

This page contains a collection of V2X datasets and their explanation.

2. VeReMi

VeReMi is a synthetic dataset, created by utilizing LuST (Version 2) and VEINS (with modifications based on Version 4.6). This dataset comprises message logs for individual vehicles, encompassing both GPS data (labeled as type=2) representing the local vehicle and CAM messages (labeled as type=3) received from other vehicles via DSRC. Its main objectives are twofold: it acts as a reference point for evaluating the performance of misbehavior detection mechanisms on a city-wide scale, while also offering significant computational savings in comparison to running VEINS simulations at typical frequencies. VeReMi is designed with three different density levels, five distinct attack scenarios, and three varying attacker densities. The source code and configuration files used as input for VEINS can be found in a separate repository under the securecomm2018 branch.

The dataset can be further expanded through the F2MD simulator. Check SmartData Model for more information.

3. AUDI's A2D2 Dataset

AUDI's A2D2 Dataset is an open multi-sensor dataset for autonomous driving research. The dataset comprises annotated semantic segmentation images and point clouds, and 3D bounding boxes. We also include three unannotated sequences with 360° time-synchronized and registered camera and lidar data, together with corresponding bus data. The dataset is around 2.3 TB in total. It is split by annotation type (i.e. semantic segmentation, 3D bounding box), to break up the download into smaller packages. Each split is packaged into a single tar file, while the remaining unlabelled sequence data is split into multiple tar files.

Details on the data import and SmartData model are available at the Dataset page.

4. OpenCOOD

OpenCOOD is an Open COOperative Detection framework for autonomous driving. More details on the dataset can be found at OpenCOOD Github . OpenCOOD provides features like easy data API for multiple popular multi-agent perception dataset, APIs to allow users use different sensor modalities, multiple SOTA 3D detection backbone, multiple sparse convolution versions, and SOTA multi-agent perception models.

There are two simulations available with multiple vehicles that were used to generate V2X data. Details on the SmartData model and Simulations can be found at OpenCOOD SmartData Model.

The OpenCOOD provides easy data API for multiple popular multi-agent perception dataset. For instance, DAIR-V2X Dataset is the first large-scale, multi-modality, multi-view dataset from real scenarios for Vehicle-Infrastructure Cooperative Autonomous Driving (VICAD). DAIR-V2X comprises 71254 LiDAR frames and 71254 Camera frames, and all frames are captured from real scenes with 3D annotations.

5. Artery V2X Dataset